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THE JOURNAL OF PHILOSOPHY

MAN AND MACHINE IN SCIENCE

I

THE PRIMARY characteristic of modern thought, it is popularly believed, is the emphasis upon concrete realities discovered by experimenting individuals free from the domination of superior authority. By contrast medieval man was extremely detached from actual happenings. For his knowledge he depended upon the book (Aristotle). Only with the advent of the Baconian revelation that knowledge is power rather than salvation did man immerse himself in the vortex of occurring events. The result has been that man has turned away from the idea that he is merely a point in the infinite toward the conception that he is a power in a natural world, able to build up an experimental (technological) science, which, if not powerful enough to reconstruct the world, at least enables him to achieve remarkable results in his adaptation to nature.

But there is another view concerning the scientist's reaction to the world of facts. It is asserted that after having achieved instruments and techniques he has striven to make them so perfect as to make himself superfluous. The result: He overlooks his own place and value, not only in the invention of machines, but in setting a goal to be reached by them. Modern objectivity thus simulates prescientific subjectivity.

In recent years the complaint against overemphasizing machinery in science has taken the form of an objection to man's neglect of his own good. Science has run to sheer efficiency for its own sake—and thus to the great harm of man himself. Science leads, it is claimed, to economic inefficiency, war, and destruction, and not to man's welfare. If this is true, it is a specialized problem and has to do more with results than with processes. Nevertheless, it illustrates the possibility of an objectivity which influences man to efface or at least forget himself.

If the retreat of man before the machine is an essential feature of our culture, then the thinking of our period is not so different from that of the Middle Ages. Now, as then, the thinker is regarded as a spectator, not an effective participant in world processes. As proof of this is offered such zealous pursuit of objectivity as practised by the symbolic logicians who regard themselves as working

with absolute cosmic relations and truth uncontaminated by the human individual. H. M. Kallen condemns such thinking as a mere imitation of industry. He says:

> As Industry, operating in factories with great automatic machines, offers what it produces to the ultimate consumer with the slogan, "untouched by the human hand," so Science appears by way of offering what it produces to the ultimate consumer with the slogan "untouched by the human mind."[1]

Now whatever disadvantages may accrue to our general philosophical conceptions by the overemphasis of instruments as against ideas, these are greatly outweighed by the difficulties we encounter in the field of technical science itself. That scientists attempt to supplant ideas by instruments, and thinking by techniques and methods, is evident from the many objections made to this procedure. For this reason we deem it worth while to pass in review some of the striking instances of misplaced objectivism in order to throw light on the relative places of men and machines in science.

II

In medical circles there is the ominous jest concerning physicians who are ordering electrocardiograms in order to count the pulse.[2] Those who follow the progress of medical science are familiar with the many defensive pleas made in recent years for the observer—the skilled clinician—who is more and more being disregarded in favor of a test—that is, a laboratory technique.

Nothing can be done in science until a datum is isolated. In the medical sciences the datum is isolated by the diagnosis. Until the pathology is discovered no treatment can be devised. A noteworthy accumulation of laboratory tests and other aids for making diagnoses have been developed in recent decades. Beginning with the thermometer, stethoscope, and microscope, medical men have acquired more and more instruments of precision. We need only mention the sphygomograph, the electrocardiograph, the X-ray, and other machines, besides various chemical and bacteriological methods. No scientific physician will neglect to avail himself of such help. Whoever denies himself access to the instruments and techniques of the laboratory is simply not in line with modern medical research. But does this mean that a diagnosis can be achieved without the clinician, the student of the diseased individual? As Professor H. T. Karsner of Western Reserve University says:

> It is to be noted that the laboratory rarely makes the diagnosis, for there are few diseases in which the laboratory has a test which is absolutely and finally conclusive.[3]

[1] THIS JOURNAL, Vol. XXIX (1932), p. 592.

[2] T. B. Magath, "The Importance of Clinical Pathology to Modern Medicine," *Science*, Vol. 76 (1932), p. 335.

[3] *Science*, Vol. 67, (1928), p. 252.

This fact, however, has not deterred medical men from leaning too heavily upon routine tests and laboratory findings distantly removed from the specific conditions of the patient. We may also quote Dr. Magath of the Mayo Clinic:

> At once I grant that during the last decade, in many places and under many conditions, clinicians have forgotten to use their own powers of observation, and have made use of the laboratory, even to a ridiculous extent.[4]

In the field of medicine it is clear that a clash has developed between man—the professionally or intellectually skillful individual—and the machine. There are those, of course, who insist that this clash is really a conflict between the scientist, who is a laboratory worker, and the physician, who is reluctant to make full use of laboratory findings. Were this the case we would have to condemn the physician so lacking in scientific acumen as to be unaware of what the medical researcher can and does do for him. There is, however, another angle in the case. It is what the late Professor C. F. Hoover of Western Reserve has called the submission of the clinician in the presence of laboratory reports. He says:

> Instrumental devices always give truthful results, but he who employs them must know if the premises are true, and only a critical clinician can tell if the instrument is employed under the conditions that supposedly are present.[5]

In the same article, Professor Hoover offers a long list of examples in which it is entirely clear that a close dependence upon instruments of precision and laboratory techniques without the judgment of the expert student of medical conditions is bad scientific practice. He goes on to suggest that at the bottom of such wrong procedure lies the principle of forgetting the patient. Laboratory tests must be fitted into the total, general, disease picture. Otherwise nothing good can be accomplished.

The contrast between the quick determination of a pathological condition and a comprehensive understanding of it can be illustrated by contrasting conventional etiology and pathogenesis. Conventional etiology in the case of tuberculosis was a sheer matter of the laboratory. It consisted of discovering the tubercle bacillus and determining its biological and chemical characteristics. But as Professor F. G. Blake[6] of Yale points out, this does not explain tuberculosis. What is needed in addition is a knowledge of the environing circumstances which favor the occurrence of the disease. Even this is not sufficient. The student of pathogenesis must also investigate what makes the patient susceptible to this kind of invasion. There are undoubtedly other factors also.

[4] *Science*, Vol. 76, (1932), p. 335.
[5] *Science*, Vol. 71, (1930), p. 492.
[6] "Clinical Investigation," *Science*, Vol. 74, (1931), pp. 27–29.

To work out any particular total disease-picture much more is required than any routine performance can provide. We need expert direction of techniques and a reflective capacity to integrate the various factors making up a pathological situation.

Assuming that this is the case, how can we account for the emphasis upon tests and techniques? Probably because of our enthusiasm for efficiency and factory methods, we have carried into purely scientific work a tremendous emphasis upon production. The cry is for facts and more facts. Once a technique has been perfected facts are rather easy to obtain. Already machines exist in profusion and we can grind out facts of all sorts. Now while no one has any quarrel with facts as such, they can hardly be ends in themselves. And surely they can not be used in the field of science to push aside the thinker, whose work makes facts tell their story and prove their worth. Here we quote the eminent Danish physiologist, A. Krogh:

> Facts are necessary, of course, but unless fertilized by ideas, correlated with other facts, illumined by thought, I consider them as only material for science.[7]

He goes on to say:

> I am prepared to submit the thesis, revolting though it may seem, that too many experiments and observations are being made and published and too little thought is bestowed upon them. It is a statement not too infrequently met with in physiological papers that a certain experiment has been repeated on, say, 47 animals. Very often, though by no means always, such a routine procedure is sheer waste of time and animals, and at the root of the apparent diligence lies a mental inertia which carries the experimenter along the accustomed groove with a minimum of exertion of the mind.[8]

The gulf between the thinker and technical production may be indicated by still another quotation from Professor Krogh:

> It is an almost invariable custom of editors of journals to reject papers which do not contain new "facts." It is natural to be skeptical toward reasoning not supported by facts, but it must happen in many cases and to many physiologists that their thoughts are illumined by facts which were incompletely understood by those who brought them forward, and I remember more than one occasion where published experiments could be given a much more consistent explanation than that adopted by their authors.[9]

To this testimony we add that of Lord Rutherford:

> Experiment without imagination or imagination without recourse to experiment, can accomplish little, but for effective progress, a happy blend of these two powers is necessary.[10]

[7] "The Progress of Physiology," *Science*, Vol. 70, (1929), pp. 200–204.
[8] *Ibid.*, p. 203.
[9] *Ibid.*
[10] "The Electrical Structure of Matter," *Science*, Vol. 58, (1923), p. 221.

and Alexis Carrel:

> In the development of the new cytology, as in the development of every science, the conception is more important than the method. Techniques are only the servants of ideas. They have no great power in themselves. For this reason, the application to biological problems of the so-called method of tissue culture by workers still clinging to classical cytology and histology has led to the confirmation of facts already known, but not to any real discoveries. A method is an instrument which finds only that which is being sought.[11]

III

Mathematics, perhaps more than any other product of reflection, must be regarded as a tribute to thinking processes, since its subject-matter (relations) is itself largely the result of creative thought. But even mathematics has been made a pretext to minimize the importance of the thinker in scientific work.

No more important or powerful scientific instrument than mathematics in its measuring and calculating features has as yet been devised for making definite and accurate our contacts with phenomena. And so we may on the one hand stress the power of thought which can produce such an instrument, or we can emphasize the value of the instrument and the objectivity of its application. In the latter case we may celebrate the machine with a corresponding obliviscence regarding its origin and fitness of employment.

Measurement and calculation can, of course, be best applied to the simpler and more mechanical phenomena. Accordingly, we may be misled into believing that such phenomena are more real than other kinds and that science is reducible to these formal operations. From the very dawn of modern science the emphasis of mathematical application placed a greater value upon the then measurable, and obstructed the investigative path of the organic and psychological sciences from which we have not yet recovered.

We still suffer from the conception that only the measurable and the rigorously calculable are scientific, though the wiser of even physical scientists do not share this view. For example, Professor G. N. Lewis definitely rejects such a notion when he writes:

> I have no patience with attempts to identify science with measurement, which is but one of its tools, or with any definition of the scientist which would exclude a Darwin, a Pasteur or a Kekulé.[12]

To his list can, of course, be added Harvey, Linnaeus, Schwann, Schleiden, Mendel, Virchow, and many others. By over-emphasizing measurement and calculation one overlooks the place of all hypothesis-making and experimental techniques which mathematics only aids but does not supplant.

[11] "The New Cytology," *Science*, Vol. 73, (1931), p. 303.

[12] *The Anatomy of Science*, 1926, p. 6.

It is only such a false objectivism that is responsible for the confusion of the measurements with the facts measured. The critical observation and judgment of the scientist can not be set aside for the technique of measurement, even when the evolution of a measure and a method of measurement is not so intricate as to require much reflection and experiment.

It is a notorious fact that, in the statistical branch of mathematics, thinking is set aside in favor of method, rule, and formula—in short, mechanical devices. Discussing the statistical situation in America, E. B. Wilson says:

> It is not the illuminated and generalizing minds of Farr and Galton that guide us on our way, but the cheerful chatter of the Hollerith tabulator and the Millionair calculator.[13]

Now no one would be so bold as to decry the use of mechanical aids in any sort of achievement. It would be a peculiar form of egomania to suppose that the human organism can get along without technical extensions of its faculties. We must increase our seeing powers by microscopes and telescopes, our hearing powers by vacuum tubes. But extension is not substitution. In the field of statistics we can use more and more devices, an increasing number of formulae, more and more tabulators and calculators, but they can only be utilized to execute ideas representing competent and sound reflection.

The thinker is prior to the machine. Machines or formulae can only help in our study; they can not initiate or direct an investigation. Only the thinker can do that. We must admit, even insist, that certain techniques or formulae make it possible for the scientist to achieve things that would otherwise be impossible. These aids, however, are only of value when directed by the thinker. A correlation coefficient is a powerful tool in scientific accomplishment, but it can also be a worthless or even misleading device. It has been pointed out by leading statisticians that a coefficient of correlation will indicate the degree of relationship between phenomena only when we can first experimentally or otherwise determine that there is a relation to measure.

Professor Wilson admirably sums up the case for man versus the machine in statistical science in the following quotation:

> A method is a dangerous thing unless its underlying philosophy is understood, and none more dangerous than the statistical. Our aim should be, with care, to avoid in the main erroneous conclusions. In a mathematical and strictly logical discipline the care is one of technique; but in a natural science and in statistics the care must extend not only over the technique but to the matter of judgment, as is necessarily the case in coming to conclusions upon any problem of real life where the complications are great. Over-attention to tech-

[13] "Statistical Inference," *Science*, Vol. 63 (1926), p. 291.

nique may actually blind one to the dangers that lurk about on every side—like the gambler who ruins himself with his system carefully elaborated to beat the game. In the long run it is only clear thinking, experienced methods, that win the strongholds of science.[14]

IV

At the bottom of the emphasis upon the machine in science lies a peculiar paradox. On the one hand, man is himself one of the most sensitive and most efficient of machines, but on the other, even as a machine he has been undervalued. This, in spite of the fact that the techniques and tests in science are themselves machine products —products of man the machine. Science is willing to give full credit to man in so far as he produces other machines, but we have already indicated that science is somewhat wary of man as a producer of ideas and conceptions governing the use of machines. How important is this phase of man the machine may be gauged by the statement of R. A. Millikan:

> Four fifths of all the experiments which we make in our physical laboratories in the hope of developing new relations, establishing new laws, or opening up new avenues of progress, are found to be directed along wrong lines and have to be abandoned.[15]

The implication is clear. A more intense cultivation of scientific thought and reflection might cut down the number of false starts, the amount of trial and error in science.

No suggestion in recent decades has been more fruitful than the need for the study of postulation. Postulation in science means that the scientist must be aware of the conceptual groundwork that he lays down for his scientific procedure. In science, as in all human endeavor, it is the idea, the plan, which is important. Every scientist knows that scientific results are conditioned by the techniques and apparatus employed in the investigation. It is obvious that facts are not fully-fashioned and completed things that one needs only to ensnare. No technique, method, or experiment can be better than the postulations and hypotheses which in the final analysis are the foundations upon which they rest. It is absolutely essential, therefore, that the reflective processes which preside over the selection and control of apparatus and method be given their full meed of appreciation. We must respect the relative importance of man and his machines in scientific research.

Overwhelmed by the powers inherent in instruments of precision, scientific workers have forgotten that they are only tools for carrying out hypotheses, for verifying or rejecting scientific opin-

[14] "The Statistical Significance of Experimental Data," *Science*, Vol. 58 (1932), p. 94.

[15] "Science and Society," *Science*, Vol. 58 (1923), p. 297.

ions. Let us not forget that the carpenter and electrician also use such instruments. When the scientist uses his instruments merely in routine applications, his methods and results are no different from those of the mechanic or other artisan. The scientist is an experimenter, an explorer in the domain of the unknown, not merely a measurer of what is already at hand. His emphasis is upon knowing, not mere control; upon understanding, not easy accomplishment.

Whether man is called upon to develop an hypothesis, a conception, a tool, or a technique, he is himself an instrument of great precision if only he is experienced and free from bias. It is only he who can set up an experiment or know whether an experiment or a field observation is the proper scientific procedure. Scientists recognize also the great power that lies in man the thinker when scientific accomplishment is to be realized, not by experiment but by discovery. Even scientific discoveries do not come by haphazard circumstances. As Pasteur has said:

> In the fields of observation, chance favors only the mind that is prepared.

Man has produced all machines. He alone can conceive and invent apparatus. What is necessary is an orientation for directing the kind of apparatus to be made and its value for intellectual progress. A. N. Whitehead [16] points out that Galileo's path-finding experiments, which lie at the bottom of our experimental science, might have been made thousands of years before they were planned and executed. Only the freedom from conventional ideology was lacking. Probably no one thinks of phenomena as merely waiting to be observed, though we often underrate the place of the reflective student in the process of observation, whether or not involving instruments and experimental techniques. The thinker, himself, of course, does not arise by spontaneous generation. He is a product of the interactions of men and things, but when he does evolve, he sets the criterion for the way future interactions with things shall take place.

An excellent statement of the mutuality of observing and thinking is made by Dr. R. Cole: [17]

> In profitable investigation the observer thinks and the thinker observes. The hypothesis, we say, forms itself and the trial is made. No question is ever settled by one experiment. The experiment must be repeated, the conditions changed, new observations made, thinking and reasoning going on all the time, until there emerges the answer to the question.

Those who are inclined to minimize the value of man in comparison with the machine may be reminded that even when man

[16] *Science and the Modern World*, 1927, p. 168.

[17] "Hospital and Laboratory," *Science*, Vol. 66 (1927), p. 547.

operates below the level of reflection he may be regarded as a marvelously sensitive instrument for scientific research. Frequently in determining the existence and nature of certain phenomena the human machine can be employed where the most refined and highly technical apparatus fails. Some interesting illustrations of this fact are offered us by Professor O. Hahn [18] of the Institute for Chemistry in Berlin.

This scientist points out that the human organism can be used to detect the existence of butyric acid when it exists in absolutely unweighable amounts. Likewise, man is sensitive to mercaptan (a derivative of hydrogen sulphide) when there is only one four hundred and sixty thousand millionth of a gram present. Of course, man is not the finest sensory instrument, nor is he good for all purposes. He is obliged to employ the bloodhound to track down other men, and birds he must take into the deep recesses of mines to detect dangerous gases. But this does not detract from the outstanding fact that man is himself a very delicate instrument for accomplishing what sometimes the finest balances or other instruments can not do.

V

The dominance of processes and machines in science reflects some general conditions of our civilization. Current scientific thought and practice bespeak a society uniquely characterized by an overemphasis of the group as over against the individual. In science as in social life we stress common causes. Scientists, as well as social leaders, have adopted the principle of social unity, of common denomination. We must all work together in order that by joint effort we shall accomplish something. It is impossible to overemphasize the power of common and united effort. But need we confuse the necessities of social existence with the life of reflection or even esthetic enjoyment?

Is not this community principle at the basis of the emphasis upon machines and mass units? These supposedly give us what everybody can agree upon: they squeeze out the personal equation. It is interesting to note that our machines and techniques do for us today what intellectual traditions have done for men in the premachine era. Need we be warned against the dangers of accepting common purposes in the intellectual life? No, we have too many examples before us of what results from the regimentation of thought —from gearing science to the machinery of politics. In so far as thought is necessary for carrying on and improving social and

[18] "From the Ponderable to the Imponderable," *Science*, Vol. 77 (1933), pp. 397–403.

political existence, the same individuality and independence are necessary as in the scientific domain. We take it as established that everywhere thought should be untrammeled for positive achievement.

In line with the prevalent community principle we hear much today in scientific circles about organization. Ours is a day, it is said, when scientists must coöperate. But as far as science is concerned organization has to do merely with execution. Once a conception has been engendered, there are many technicians who can carry it out. The thinker, however, remains unique. Even the late secretary of the National Research Council, who by profession was engaged in fostering scientific coöperation, was impelled to assert:

> It is true that most of the epoch-making events in the history of scientific advance are associated with the names of single individuals.[19]

Professor Kellogg rightly adds that naturally enough such advances were made when the times were propitious and that to the propitiousness of time other men contribute. But this does not detract one iota from the fact that thinking and reflection are the work of individuals. No scientific progress can be made by organization any more than by the simple use of precision-instruments. Does this principle clash with the principle of combined effort? No. Thinkers can stimulate each other when they have each conceived a similar idea. They can frequently aid each other in perfecting an idea, but mass action can never produce one.

As an argument for coöperation Professor Kellogg asserts that only a genius can work alone. But he quite properly equates genius with scientific achievement. We have two ways of describing the facts under consideration. On the one hand, we may assume that genius is some sort of divine gift which can only function in solitude, but on the other we may observe that freedom from routine, from the necessity to execute an accepted idea, constitutes the fructifying condition for scientific growth.

Likewise, Kellogg's remark, that because so few scientists are geniuses they must coöperate in order to accomplish anything, is susceptible of another interpretation. It may be asked whether there are so few geniuses—that is, productive workers—because of the heavy impositions by social groups and the call for standard intellectual products. There is something more than fascination in the picture of the great Cavendish, who persisted in carrying on his fruitful experiments the while his contemporaries wallowed in the errors engendered by scientific tradition.

[19] V. L. Kellogg, "Isolation or Coöperation in Research," *Science*, Vol. 63 (1926), p. 216.

Behind the idea of coöperation undoubtedly lies the conception of technical achievement. This conception derives from the ties of science with technology. Coöperation is not only desirable but essential when the goal is given—especially if that end is the production of a specified article. Science, however, has no such limited goal and can not be restricted by established specifications.

There is another conception applicable to scientific work in connection with the leveling theory of coöperation, namely, the notion of division of labor. Let us have all the technicians possible and even appliers of scientific ideas. But in addition need we neglect the independent thinker—the reflective theorist—who gives hypotheses and accepts facts? Both may be needed when our science gets so complicated as to require such coöperation. The pattern we already have before us when scientific labor is divided between a theoretical Einstein, on the one hand, and the experimenters of the California Institute of Technology, on the other.

VI

In concluding, we may point out that man's relation to the machine in science mirrors a similar relation in our socio-economic life. It is a commonplace among students of intellectual history that fundamental happenings in the social macrocosm are vividly reflected in the scientific microcosm. Our social existence is symbolized by a man fashioning a machine, which, if it does not replace him as a worker, drags him into its gears and grinds him into a mechanical product. That keen social thinker, Veblen, has given us a vivid picture of how man's creation, the machine, dominates him.

> There results a standardization of the workman's intellectual life in terms of mechanical processes, which is more unmitigated and precise, the more comprehensive and consummate the industrial process in which he plays a part.[20]

We should only expect, therefore, that the scientist, like his technological brother—not cousin—finds himself playing the rôle of a Frankenstein sidestepping his mechanical creation. The scientist, too, is in danger lest his machines overpower him, and make his intelligence and thinking either unnecessary or shaped by their dies. It is a sign of our times that the scientist, the thinker, is being forgotten, while apparatus, techniques, and manipulations are superseding him. Even in science the machine is being worshipped, while the inventor—the scientist who thought it out—is set aside. It is a pertinent question whether it is a lack of confidence in the good reasoning of individuals which results in the bad objectivity of the machine. The issue here, of course, is not involved with the idea

[20] T. Veblen, *The Theory of Business Enterprise*, 1904, p. 308.

that in science poetry reading should be replaced by pointer reading, but rather with the question whether pointer reading is to substitute for thought and reflection.

J. R. KANTOR.

INDIANA UNIVERSITY.

ABSTRACTS OF PAPERS TO BE READ AT THE THIRTY-FIFTH ANNUAL MEETING OF THE EASTERN DIVISION OF THE AMERICAN PHILOSOPHICAL ASSOCIATION, THE JOHNS HOPKINS UNIVERSITY, DECEMBER 29, 30, AND 31, 1935

Pareto and the Temperamental Interpretation of History. HAROLD A. LARRABEE.

This paper will attempt to show that Pareto's sociology, filled with attacks in the name of science upon the philosophy of history as distorted by sentiments and lacking in objectivity, itself ends by constituting what might be called "the temperamental interpretation of history"; and that the key to the inconsistency lies in Pareto's refusal to abandon the notion of maximum utility, adapted from pure economics, even though he himself has demonstrated that in sociology it breaks down over the heterogeneity of human values. Pareto, that is, repeatedly oversteps the ethical neutrality of the descriptive scientist by assuming several normative criteria of his own. These enable him to pass historical judgments concerning the maximum utilities *for* and *of* given communities. This latest specimen of "scientific history," yielding as it does justifications of ruling-class violence, extreme nationalism, and bitter attacks upon humanitarian "weakness," is one more example of the difficulties encountered in trying to exclude judgments of value from historical generalizations. Furthermore, the version of the temperamental interpretation of history presented by *The Mind and Society* is only too evidently the product of Pareto's own temperament.

Philosophy of Life and Philosophy of History. RICHARD KRONER.

It is ourselves that the philosophy of life concerns. Therefore it can not be founded on biology. A human being differs from an animal in that he has the power of saying "I" to himself—of having an idea of himself. Man not only lives his life, he lives it up to an idea. The life of mankind is therefore historical, for history is the realization of the idea; it is founded on the fact, that man makes programs and projects for his life. A philosophy of history must therefore be a philosophy of human life. Philosophy of life must become philosophy of history.

The idea which is realized in historical life is not theoretical only, but both theoretical and practical. It is the idea of knowing and willing. It is the topic of philosophy and the aim of politics. In so far as historical life is realization of the idea, political life is the center of historical life.

The idea is not only self-knowledge of human being, but it is also knowledge of universal being. Each is connected inseparably with the other, for human being can only know itself knowing itself in the world.

Historical life is life not only because the idea is defended and realized by living beings, but also because the idea itself is living, or because it has power over man. Therefore historical evolution is necessary; but historical necessity is itself spiritual liberty; the idea is not exact blind obedience like nature, but is realized by man only on account of insight and enthusiasm.

Philosophy of History. STERLING P. LAMPRECHT.

The nature and purpose of philosophy of history are often misconceived. Many philosophies of history seek some first event or some last event or some typical event in terms of which the course of history is to be explained. Such philosophies have poetic value but are mythical. Philosophy of history, in order to be sound, must be treated as a branch of metaphysics, the aim of which is to analyze events and to determine their common character.

As an introductory treatment of philosophy of history, this paper defends the two-fold thesis that all events are caused and that all events are contingent. Causality and contingency have often been treated as antithetical and their joint assertion as contradictory. This has been usually based upon a confusion of causality with uniformity or of contingency with a violation of causal laws. The compatibility of causality and contingency is obvious when causality is treated as the operation of agents and contingency is treated as the presence of materials upon which the operation occurs.

Philosophy of history is not properly a means of anticipating the future. But it is a basis for a sound politics as well as a chapter in metaphysics.

What is a Class? OWEN N. HILLMAN.

There is among contemporary logicians a wide diversity of opinion concerning the real nature of classes. The common notion of a class as an aggregate or collection, although accepted by some logicians, has been rejected by Mr. Russell and others on the ground that null and single-membered classes are demonstrably distinct from their members. Nor can a class be identified with its defining

function since different defining functions may determine the same class.

But if a class is distinct both from its defining function and from its members, then either it is some third thing or else it does not exist at all. Mr. Eaton, adopting the former alternative, holds that classes are things intermediate between universals and particulars. This view, however, suffers the defect of unintelligibility. Mr. Russell, preferring the second alternative, has denied the real existence of classes. But this position is likewise untenable since apart from actually existing classes there is nothing to which arithmetic can apply. Further, Mr. Russell's arguments against the reality of classes serves in fact to establish only the unreality of null and single-membered classes.

But despite the limited validity of Mr. Russell's arguments they are nevertheless important for, inasmuch as all the difficulties with the view that a class is an aggregate arise in connection with null and single-membered classes, once the reality of these classes is disproved there remains no reason for not regarding a class as an aggregate. A class is, therefore, correctly defined as an aggregate of all the objects satisfying some propositional function.

Are Some Propositions Neither True nor False? CHARLES A. BAYLIS.

Recent developments in mathematical and logical theory have occasioned vigorous attacks on the principle of excluded middle. In some quarters the discovery of the "many-valued logics" has been regarded as sufficient ground for the rejection of this principle. However, these "logics" are in fact only abstract uninterpreted systems. It it turns out that propositions are capable of other values besides "true" and "false," then one of these many-valued systems will be capable of interpretation as a truth-value matrix logic. The acceptance or rejection of the principle of excluded middle is one of the determinants of the form of abstract system which will be acceptable as a logic, and not *vice-versa*.

Łukasiewicz recognizes this but holds that there are in fact certain propositions which are neither true nor false, and that, therefore, at least a three-valued logic is necessary. His argument, however, rests upon a false assumption; his example does not illustrate his thesis.

The position of certain finitists who have objected to the principle of excluded middle either does not really involve rejection of that principle or rests upon an identification of truth and verifiability.

There are indeed sets of concepts, other than the truth-falsity set, which exhaustively classify propositions, and these are useful

for many purposes. Their existence does not show, however, that some propositions are neither true nor false.

In short, recent discoveries in logic and mathematics are irrelevant to the truth of the principle of excluded middle.

Propositions about Space-Time. A. USHENKO.

This paper gives a refutation of the thesis of logical positivism that sentences about space-time are verbal on the general ground that they are about definite descriptions and not about words. Verbal sentences, according to logical positivism, are exemplified by 3A "The rose is a thing" and 3B "This book treats of Africa" and contrasted with the real-object sentences exemplified by 1A "The rose is red" and 1B "Mr. B. visited Africa" because the first pair is and the second is not translatable, respectively, into 2A "The word 'rose' is a thing-word" and 2B "This book contains the word 'Africa.'"

This classification of sentences is criticized because its criterion for translating 3A and 3B into 2A and 2B does not preclude an attempt at translating 1A and 1B into 2A and 2B. Such an attempt can be rejected by the logical positivists for two reasons. First, the proposed translation does not agree with the current use of the words involved and therefore depends on observation of facts and not on the use of words. This reason would imply that propositions about space-time are factual and not verbal. Second, the proposed translation ignores two different uses of definite descriptions, corresponding to propositions which have and propositions which do not have existential import. Against this reason of logical positivism the argument is that propositions about definite descriptions in either use have existential import, and so propositions about descriptions of space-time are not verbal.

Poetry and Truth in Plato. IRWIN EDMAN.

There are two extremes in the treatment of Plato. There is a tendency on the one hand, among the purely traditional scholars, to seek in Plato the elements of a theory, the parts of a doctrine which together constitute his vision and his version of the truth. From this point of view, the truth in Plato consists of, let us say, a theory of Ideas, a theory of knowledge, of reminiscence, and a concept of a perfect commonwealth.

On the other hand, there is an extreme view which has attempted to treat Plato primarily and perhaps exclusively as a poet, with no logical consistency of doctrine, but at most a certain pervasive unity of atmosphere and a persistent recurrence of favorite themes. This treatment of Plato as a poet is promoted partly by the difficulties

involved in an attempt to treat him as a literal expounder of dogmatic truths. The Dialogues are clearly dialogues, not tracts; Socrates is patently a dramatic creation; such "truths" as are uttered are expressed in the context of dramatic situations; and these "truths," with reference, for instance, to knowledge, are stated with such variety as to be almost contradictory in the various Dialogues.

Yet obviously both these extreme positions can not in themselves be true when extremely stated. If Plato were simply a poet, it would be singular that he impresses most readers as having a fundamental set of convictions, however flexible, on ultimate metaphysical and moral matters. If the Dialogues were intended, on the other hand, simply as expressions of "truth," the confusions and contradictions would be both fantastic and inexplicable. It is clear that Plato himself was troubled by the delicate relations of poetry and truth. He has specific things to say, in the first place, on the nature of poetry: as inspired, in the *Ion*, as reminiscence, in the *Phaedrus*. He has a theory of poetry by implication, in his use of the myth, and a clear conception of the dangers of poetry to truth and morals in the *Republic*. There are, on the other hand, sections of the *Republic*, in particular Books V and VI, in which it would be hard to believe that Plato was not serious in attempting to express metaphysical truths. In the *Theatetus*, the great criticism of conventional theories of knowledge obviously is made in dead seriousness, and almost literalness.

Where is a line to be drawn, then, between poetry and truth in Plato, and how is one to explain the curious intermingling of them? It is suggested that, putting it summarily, Plato was a poet trying to speak the truth, a myth-maker and a dramatist trying only half-successfully to use the language of rational exposition.

Philosophical Method according to Republic *and* Phaedo. RICHARD ROBINSON.

The Divided Line in the *Republic* describes and contrasts two methods, that of "reason," which is "dialectic," and that of "understanding," which is apparently mathematics. Whereas mathematics uses images and treats its "hypotheses" as "beginnings," dialectic uses no sensible and treats its "hypotheses" as "really hypotheses, like steps and points of departure." The difficulties of interpreting this doctrine appear to be very great. Does Plato mean that there is a necessary connection between using images and treating "hypotheses" as "beginnings"; and if so, what is this connection? In what way do (or did) mathematicians "hypothesize the odd and the even and the figures and three kinds of angle" (510C)? What is the nature of the upward progress of dialectic, and in what

way is this progress made without the aid of sense? What is the "beginning of all" at which dialectic finally arrives (511B), and in what sense is it "unhypothetical"? Is it proved by the upward progress, or is it self-evident, or what? Is there also a downward progress of dialectic, which is not a mere retracing of the upward steps? Is any light thrown on these problems by the upward progress of the lover in the *Banquet,* or by the use of the mathematical method of "hypothesis" in *Meno* 86–87, or by the account of philosophical methods in *Phaedo* 95–107? Is either of the methods described in *Phaedo* the same as either of the methods described in the Line?

The Philosophical Economy of the Theory of Ideas. HAROLD CHERNISS.

The principle of economy embodied in Plato's formulation of the problem of astronomy furnishes a clue to the motivation of the theory of Ideas. Philosophical controversy had discovered difficulties of every kind but had neglected to delimit the spheres of these difficulties with the result that investigation of any particular problem was paralyzed by the immediate introduction of an apparent paradox concerning some other and more general universe of discourse. The dialogues furnish evidence to show that Plato recognized the necessity of distinguishing three main spheres of investigation, ethics, epistemology, and ontology. He required an hypothesis which would save the phenomena in each of these spheres and which would at the same time give an intelligible account of the apparent disparity of the three classes of phenomena. Beginning with ethics he demonstrated that the theory of Ideas is the necessary and sufficient hypothesis to account for human conduct. Nevertheless, a normative ethics implies a solution of the problems of epistemology. The phenomena of knowledge, sensation, and opinion, however, examined as a closed universe, lead to the hypothesis of Ideas; and this coincidence of separate results lends further validity to the ethical solution. Once more, unless the epistemological and ethical hypothesis is to be merely pragmatic, it must be substantiated by the independent investigation of objective reality. The phenomena of the physical world are then found to imply an hypothesis which turns out to be the same as that independently established for the other two universes. The final result, then, is a single hypothesis which in the three universes considered separately is necessary and sufficient to save the phenomena and which now demonstrates the connection of these three spheres as phases of a single unified cosmos.

Plato's Idea of the Good. RAPHAEL DEMOS.

In the *Republic,* the Good is stated to be both beyond the mind and beyond being. We interpret this double characterization of the Good to mean:

(*a*) The Good is not relative to a mind. There is an absolute realm of values.

(*b*) The Good is other than being. Value can not be reduced to existence.

(*c*) Further, the Good is not pleasure, i.e., it is not satisfaction. Satisfaction is good or not according as it participates in the Good. Thus, the Good is intrinsic and indefinable.

(*d*) Probably, the Good is not even a property, or a form at all. It is a norm.

(*e*) The Good is power. This is the ontological principle, that the Good is the source of being. Thus, to be is to participate in the Good.

(*f*) Characteristics of the Good. The Good is plenitude, and the Good is measure; fulness of being, with internal order.

There are certain paradoxes in Plato's treatment of the Good:

1. The Good is the best, and the Good is the whole. Selective vs. inclusive characterization.

2. The Good is present in the actual (as the definition of the actual); the Good is the ideal beyond the actual.

3. The Good is knowable; the Good is unknowable.

The Concept of Cause in History. JAMES BURNHAM.

Prior to the question, "What is the cause of historical change?" is the question, "What meaning can the concept of 'cause' have in history?"

The meaning of cause which is used by modern mathematico-experimental sciences is severely limited in application to history. The subject-matter of history does not admit, or admits only to a limited extent, the conditions of causal analysis as understood by science.

Likewise the various teleological concepts of cause, though frequently employed by historians and philosophers of history, are of little or no value in answering the major problems of history.

We must conclude that historical generalizations have only nominal significance, that there is no science of history in the abstract, that all real historical problems are concrete.

Positively, we must understand "cause" in history as in part a normative concept. It involves a judgment of "importance" or value, and includes at least implicit reference to future action.

Conscious social and political action partly takes the place, in history, of experimental verification in the sciences. The meaning of an alleged "proposition of fact" in history is elucidated by actions to change history.

Thus the problem of the meaning of cause in history is part of the larger problem of the relation of facts to values. The knowledge of history can never be divorced, even in theory, from the making of history.

BOOK REVIEWS

Hume's Theory of the Understanding. RALPH W. CHURCH. Ithaca: Cornell University Press. 1935. 238 pp. $3.00.

Professor Church's study of Hume, based almost wholly on Book I of the *Treatise,* has chapters on the "elements" of Hume's philosophy, analysis of causation and substance, causal inference, belief in substance, and knowledge and belief. An appendix argues against Hume's analysis of experience from an idealistic standpoint.

One point made with good effect is that for Hume the experience of mature men is not a succession of impressions related to nothing beyond themselves and of ideas that are detached. Rather, it is well contended, mature experience is relational. That is, experience is of perceptions, and each perception is a synthesis in habit of certain impressions and ideas that constitute that particular belief. Imagination is thus the foundation of ordinary human sense-experience as well as of memory and understanding.

Professor Church adheres to the interpretation of Hume that makes of Hume a sensory phenomenalist. Thus he speaks of Hume's objects as "mnemonic-sensory systems." This interpretation seems to the reviewer to be due to turning Hume's analysis of how we come to believe in bodies into a theory of what bodies are. Certain passages in Hume himself may favor Professor Church's interpretation; but a great many do not seem to mean any such thing. However this may be, Professor Church is surely right in discussing "causal inference" and "belief in substance" in chapters separate from the chapter on "analysis of causation and substance."

S. P. L.

Immanual Kant on Philosophy in General. Translated, with Four Introductory Essays. HUMAYUN KABIR. Calcutta: The University Press. 1935. Pp. cl + 90. 9/–.

The title of this book is unfortunate, since it gives no indication that the Kantian work here translated is the *Introduction* to the first edition of the *Critique of Judgment.* This *Introduction* was dis-

carded by Kant in the second edition and the *Introduction* with which we are familiar was substituted for it. The manuscript of the first *Introduction,* corrected by Kant himself, is in Rostock. Fragments of it were printed by J. S. Beck in 1794, in his Selections from the Kantian Writings, under the title *Anmerkungen zur Einleitung in die Kritik der Urteilskraft,* and reprinted by F. Ch. Starke, in an edition of Kant's shorter writings (1833), under the title *Über Philosophie überhaupt und über die Kritik der Urteilskraft insbesondere.* (Mr. Kabir seems to have taken his title from the first half of this misleading title.) The earlier *Introduction* first reappeared in its complete form in Cassirer's Edition of Kant (1914), and was reprinted, with critical notes, in a special volume edited by Gerhard Lehmann (1926). The latter is the German text which Mr. Kabir has here translated. His failure to inform his readers adequately of the facts which I have just summarized is hard to understand.

The translation is reasonably close to the original, though the translator has taken some unwarranted liberties; he has, for instance, wholly ignored Kant's italization of words and phrases. It was a genuine service, however, to translate this *Introduction* into English.

Four Essays, on Kant's Theory of Knowledge, his Theory of Conduct, Judgment in the Critical Philosophy, and a summary and comparison of the two *Introductions,* serve as a preface to the translation. They contain well-chosen extracts from the writings on Kant of Kemp Smith, Caird, and Lindsay, some of which are criticized with competence. The author's own interpretation of the relation of the three *Critiques* to one another throws light (though hardly new light) upon this difficult problem. Of the two *Introductions* he says: "The Introduction [to the second edition] has certain great advantages over 'On Philosophy in General.' For one thing, it is far more concise, and yet states the essential problem of Judgment [i.e., of the relation of the particular to its universal] more clearly than the other" (p. cxix); its "second great merit . . . lies in its exposition of the relation of finality and pleasure" (p. cxxi). "It does not, on the other hand, reveal [as] clearly [as does the first *Introduction*] the workings of Kant's mind. Nor does [it] work out in such detail the implications of the principle of finality in the different regions of one experience. . . . But the most important contribution of 'Philosophy in General' is . . . its insistence upon the autonomy of feeling" (pp. cxxxiii ff.).

T. M. G.

Le rationalisme de Whewell. ROBERT BLANCHÉ. Paris: Félix Alcan. 1935. Pp. xxviii + 223. 25 francs.

This is a sympathetic though critical account of Whewell's philosophy, stressing the elements of originality and permanent importance in his outlook while analyzing the various incompatible strains in it. The author shows that Whewell recognized a dualism between empirical and ideal factors in knowledge, but that he emphasized the latter in opposition to the fashions of his day. Whewell's rationalism consisted in his refusal to eliminate the constitutive rôle of non-empirical elements in thought. However, his rationalism was not an apriorism, because Whewell did not regard the "ideas" as preformed in the mind independently of all experience. His rationalism was experimental and inductive, for the ideas were only gradually added to the essential furniture of the mind, as the end-products of a groping historical process.

M. Blanché makes out an excellent case for his thesis that Whewell was prevented from developing his position clearly because of his adherence to preconceived theories of scientific knowledge not warranted by his own analysis. In the first place, Whewell never clearly saw the difference between principles as theories unifying a diverse field (which is what his own analysis revealed them to be), and principles as foundations or basic, indubitable premisses. He therefore never emancipated himself from a semi-Cartesianism, according to which all inductive propositions were required to have the certitude of mathematical theorems. He was thus led to abandon in principle his theory of a progressive reason, and to transfer from the mind of man to a Divine Reason the eternally complete system of principles. And in the second place, Whewell did not take a decisive stand on the question whether the "ideas" were formal, regulative rules for thought, or whether they were the objects of thought. Because of this indecision, he oscillated between a Kantian standpoint and the position of classic realistic ontology.

E. N.

Science, History, and Theology. Aristotelian Society Supplementary Volume XIV. The Symposia read at the Joint Session of the Aristotelian Society and the Mind Association at Bedford College, London, July 5–8, 1935. London: Harrison & Sons, Ltd. 1935. 15 s.

Perhaps the most striking section of this volume is the symposium on "Mechanical and Teleological Causation." That three such thinkers as Mace, Stout, and Ewing should be found agreeing in defence of the view that there is more in causality than mere constant concomitance shows a real change in point of view over such

discussions of even ten years ago. Of course this new point of view is a revival of a very old one, and some of the difficulties that beset it are well brought out in the able and closely reasoned critique with which Mr. Broad closes the symposium. Somewhat connected with this discussion is a debate on "Internal Relations," to which the papers here printed are really contributions, though it is hard to keep this controversy alive without turning it into something else, such as a discussion of causality.

The other contents of the volume contribute perhaps less, though the Presidential Address by Miss Stebbing, "Sounds, Shapes, and Words," is an indication of the present interest in symbols, and calls attention to the troublesome character of problems formerly quite ignored. The symposia on "Explanation in History" and "Is a Science of Theology Possible?" are worth reading, but less symptomatic of novel points of view. But the whole volume is a sign that philosophical discussions sometimes reach out into new fields and new approaches, and is therefore a hopeful augury.

H. T. C.

Caractère et personnalité. E. PEILLAUBE. Paris: Pierre Téqui. 1935. viii + 224 pp. 20 francs.

This book, the posthumous work of a priest, is one of a series which contains volumes by Messieurs Maritain, Dwelshauvers, and Desgrippes, many of which have been reviewed in these pages. It is added evidence of the vitality of the Thomistic tradition and of Roman Catholicism. It is also evidence of the value to philosophers of having at least a vocabulary upon which they can agree, even if the vocabulary is not stylish in circles not their own. Father Peillaube's problem in studying character and personality is the problem of one who is charged with the direction of souls and one can not but feel that one would be safer under his direction than under that of many better-known psychiatrists and "educational psychologists." He has, it is true, a *parti pris,* namely, that guidance does souls some good, that men have become better through their own efforts and that their change for the better is attributable to something which he calls their "will." That this is so he appears to infer from the history of the saints and from his observation, presumably of people entrusted to his care. He also takes for granted that the word "better" means something definite, that it is to be measured by the standards of Catholic ethics. The body of his book is given over to showing how it is possible for this ideal to be realized. Here he does not resort to authority but to what he considers to be empirical science: physiology—with perhaps too much reliance on endocrinology, genetics, and psychology. It does not seem likely

that his facts are the best that could be gathered in these fields, but in almost every case his reasoning from the facts he uses is strong and subtle. His conclusion is that the sciences do not discourage the Father Confessor but rather give him every reason to continue the work which his faith puts upon him. The main reason is that they show human nature not only to be more complex than the average person suspects but also more plastic. Father Peillaube, one gathers, was not a person who would speak of "the child" or "the undergraduate," but one who would insist that each individual had his own problems to be solved in his own terms. A guide who has reached that point, not from laziness nor from romantic love of variety, is surely to be warmly commended.

G. B.

Aesthetics and Psychology. CHARLES MAURON. Translated from the French by Roger Fry and Katherine John. London: The Hogarth Press. 1935. 110 pp. 4/6.

This essay of little more than a hundred pages seems to me one of the most refreshing and possibly important books in esthetic theory published in a good many years. It is as arresting in its implications as it is modest in its method, as essentially exact and serious as it is graceful and witty.

The title is almost (and almost deliberately) misleading. For the author fairly boasts that he knows nothing much about technical psychology, though he thinks the latter might profitably spend some of its time exploring and, he guesses, confirming his hypotheses.

M. Mauron knows all the things that are or have been wrong with esthetics; he starts off gaily and shrewdly:

> Most æstheticians of the past conceived their science—or what they believed to be their science—after the model of ethics. Their purpose was to establish a standard of values, supposed to be absolute, which enabled them to distribute blame and recompense with a serene conscience. The pleasure of judging and feeling justified in one's judgments is so great that it has for long promoted these philosophers to accept two hypotheses which are very convenient, but entirely gratuitous:
>
> (1) That there exists a universal beauty.
> (2) That a moment's reflection should suffice to define it.
>
> . . . Tell anyone who has some experience of intellectual work that you are an æsthetician and he will probably laugh. [Pp. 7–8.]

But M. Mauron thinks a reasonable esthetic is possible, and that it is "being constituted under our eyes precisely on the model of the science of religion. Like that, it will consist first of an external and historical study of the relevant facts" (p. 8). "A second branch of æsthetics belongs of right to the psychologist. What does the

need in certain men to create works of art and the pleasure of contemplating them in others correspond to?" (p. 9). It is with this latter question that M. Mauron's essay is largely concerned.

M. Mauron believes there is, and makes a very good case for, a general "æsthetic attitude." This is its "essential characteristic: the artist contemplates the universe without any idea of making use of it. If I may hazard a metaphor, his eyes are so focused as to concentrate his whole attention on the present; whereas in active life, . . . our attention is focused on a future more or less remote" (pp. 39f.).

There are, our author insists, three consequences to such focusing:

"(1) *Increased sensitiveness.* The word 'sensitiveness' is here used in its scientific sense; the perception of differences. . . . *Difference, and therefore originality, is accentuated.* The æsthetic universe thus becomes at once richer and stranger" (p. 40).

"(2) *The multiplication of echoes.*" The sensations awakened and focused in art "can awaken distant repercussions, can excite in the depths of our being a hubbub of past impressions, feelings and desires" (p. 40). It is in this sense that art is "expressive," as well as an awakener and an arrester of sensibility.

"(3) *Dissolution of the practical organization of reality, giving place to other possible organizations.* . . . Between the different sensations or between the echoes, or between echoes and sensations, correspondences arise, systems are formed, composing what will afterwards become the unity of the work" (pp. 43–44).

The rest of the book is a development, pointed, clear, documented with the happiest of illustrations from all the arts, of these phases or levels of esthetic pleasure. M. Mauron knows *what* he is talking about in the various arts, and if he pretends, not very convincingly, to be altogether innocent of psychology, he knows his way about in the contemporary philosophy of science and in traditional metaphysics. It is hard to disagree with him, his "theory" is offered so modestly and with such charming reservations, it is so fresh and revealing, as his analysis makes clear, for all the arts,—and he includes all of them.

"If I had to sum up," he says on page 106, "in a sentence the results of my enquiry, I should say that art appears to me to seek everywhere the psychological conditions *best suited* to the growth of pleasures which *may remain contemplative.*" But neither that summary sentence, nor the program cited above do justice to the care and clarity the author devotes to examining the way in which instinct and form, sensibility, sentiment, and pure reason, find satisfaction in the arts. He is particularly ingenious and just in treat-

ing the delicate question as to the way in which practical interests are irrelevant to, and the sense in which they contribute to, pure and specific art and esthetic pleasure.

The book itself summarizes so much that it can not be summarized. The tone of the work, though, may be given in its last paragraph, which comes after a discussion of the uniqueness and hence indefinability of esthetic quality:

> Therefore, so long as there are art-lovers on earth they will find in their inexplicable peculiarities motives of dispute. Thus, when the leaves are falling from a tree, each may say to its neighbour: "The physicists can think what they please, but I don't fall as you do." Which, we know, easily becomes: "I fall *better* than you." In this essay I have explained how I fall, in æsthetics. But I hope the reader will believe that it is an unassuming fall. [Pp. 109–110.]

It should be remarked that the translation, left unfinished by Roger Fry at his death, and completed by Katherine John, is first-rate, which is to say, it is excellent English. The author, incidentally, explicitly, and by internal evidence, avows his indebtedness to the ideas of Roger Fry.

I. E.

What Does America Mean? ALEXANDER MEIKELJOHN. New York: W. W. Norton & Co., Inc. 1935. xii + 271 pp. $3.00.

This book is a heart-to-heart talk to Americans about their souls, and as such should perhaps be exempt from technical criticism. The author terms it "as near a confession of faith as I shall ever make . . . "; and the publishers describe it correctly as "a noble book, passionately written as befits its theme." It should be abundantly clear that the author has mounted the pulpit and is on the side of the angels; but whether his insights and arguments match the goodness of his intentions is another story. He points out with justice that much of our contemporary self-criticism as a people springs from fierce resentment of our failures to live up to our traditional ideals, rather than from any extensive abandonment of them. We still yearn for Liberty, Equality, Fraternity, especially for Liberty, but it is "our misunderstanding of liberty which threatens to enslave us." This confusion he attributes to a naturalism which has gradually transformed the ideal of liberty from internal to external terms. Yet he laments America's loss of idealistic social pioneer leadership to Russia, where naturalism is virtually the state-religion. In spite of the force of the late Justice Holmes' dictum that "the necessitous man is not free," the author contends that "planning for a social order in terms of comfort and convenience cannot fail to end in chaos and confusion." Four main reforms are advocated as implications of the true inner or spiritual conception

of the American ideal of Liberty: first, universal life-long education "for the highest forms of behavior of which each individual is capable"; second, newspapers, radio, and the theatre "taken out of commercial hands" by endowment and administered like universities; third, economic democracy through a radical socialistic transformation of our "revolting" business system; and finally, the ending of the class-struggle, but not by the victory of any single class. "America means whatever meaning our spirit brings into being. . . . Its chief enterprise is the making of men and women free."

H. A. L.

Rationalisme et religion. ANDRÉ BREMOND, S.J. (Archives de Philosophie, Volume XI, Cahier IV.) Paris. Gabriel Beauchesne et ses fils. 1935. 203 pp. 36 francs.

"A philosophy which does not try to convert us is not worth an hour's trouble," declares the author in the first sentence of this combative essay. Accepting Pascal's antithesis between the God of Abraham and the God of the philosophers, he redrafts the issue in terms of modern idealistic rationalism in the person of Professor Brunschvicg and others *versus* religion as found in the church of Rome. More than half the book is devoted to clearing away the false idols of Greek rationalism and of the later scientific variety from Spinoza to Brunschvicg and Piaget. This leaves the author free to discuss in outline two works in English "of very high value," Professor A. E. Taylor's Gifford Lectures of 1926 and 1928, and Professor W. E. Hocking's *The Meaning of God in Human Experience,* adding comments of his own. He then returns to the assault in a reply to Professor Brunschvicg's communication to the Prague Congress entitled "Religion and Philosophy." He perceives all too clearly the nostalgia of many modern idealists for the ancient faith; and exploits to the full what some would regard as their strategical error, as philosophers, of "continually exhorting us to become truly converted."

H. A. L.

OTHER NEW BOOKS AND JOURNALS

Foerster, Friedrich Wilhelm: Ewiges Licht und menschliche Finsternis. Ueberzeitliches für unsere Zeit. Luzern: Vita Nova Verlag. 1935. 123 pp. 4 fr.; 3.20 M.

Tittle, Ernest Fremont: A Way to Life. New York: Henry Holt & Co. 1935. xii + 183 pp. $1.75.

REVUE DE MÉTAPHYSIQUE ET DE MORALE. 42 Année, No. 4. Valeur et grandeur: *S. Alexander.* L'astrobiologie et la pensée de l'Asie: Essai sur les origines des sciences et des théories morales (*suite*):

R. Berthelot. L'orientation nouvelle de la chimie: *J.-J. Trillat.* Descartes d'après le P. Laberthonnière: *E. Bréhier.* Les travaux de jeunesse de Hegel d'après des ouvrages récents (*suite et fin*): *J. Hyppolite.* Corporatisme et démocratie (*premier article*): *B. Mirkine-Guetzevitch.*

GIORNALE CRITICO DELLA FILOSOFIA ITALIANA. Anno XVI, Fasc. IV–V. L'agostinismo avicenizzante e il punto di partenza della filosofia di M. Ficino: *M. Heitzman.* Il deismo inglese del Settecento: *C. Motzo Dentice di Accadia.* La conchiusione della filosofia classica con Hegel e la sua dissoluzione in Marx e Kierkegaard: *K. Löwith.* La dottrina del pensiero del Blondel nel suo svolgimento dialettico: *G. Durante.* Gli scritti filosofici di Giovita Scalvini: *F. Castellani.*

SCIENTA. Vol. LVIII, N. CCLXXXII–10. L'astronomie nautique et les grandes découvertes maritimes du quinzième et du seizième siècles: *E. Doublet.* Chemische Elemente und Urmaterie. Erster Teil: *F. A. Paneth.* The Rhythm of Living Tissues: *W. Burridge.* La populazione dell'Europa: *F. Savorgnan.* (N. CCLXXIII–11.) Significance of "Four-Dimensional Geometry": *W. V. Metcalf.* Chemische Elemente und Urmaterie. Zweiter Teil: *F. A. Paneth.* I problemi della moderna embriologia. Parte Prima: *S. Ranzi.* Les mécanismes et les faits de conscience: *E. Augier.* Le rôle de la religion dans les civilisations prégrecques: *A. Hertz.*

NOTES AND NEWS

We print below the program of the Thirty-fifth Annual Meeting of the Eastern Division of the American Philosophical Association which will be held at The Johns Hopkins University, Baltimore, Maryland, December 29, 30, and 31, 1935.

SUNDAY, DECEMBER 29

CONCURRENT SESSIONS

2:30 P.M. Room 409 Southern Hotel

Pareto and the Temperamental Interpretation of History ..... *Harold A. Larrabee*

Philosophy of Life and Philosophy of History.. *Richard Kroner*

Introduced by Fritz Marti

Philosophy of History ..... *Sterling P. Lamprecht*

2:30 P.M. Room 417 Southern Hotel

What is a Class? ..... *Owen N. Hillman*

Are Some Propositions Neither True Nor False? *Charles A. Baylis*

Propositions about Space-Time *A. Ushenko*

8:00 P.M. Informal Smoker Southern Hotel

MONDAY, DECEMBER 30

9:30 A.M. Room 409 Southern Hotel

Symposium: "Implications for Philosophy of the Theory of Probability."

Morris R. Cohen
F. S. C. Northrup
William G. Savery

2:15 P.M. Room 409 Southern Hotel

Symposium: "The Philosophy of Plato"

Poetry and Truth in Plato ..... *Irwin Edman*
Philosophical Method According to *Republic* and *Phaedo* ..... *Richard Robinson*
The Philosophical Economy of the Theory of Ideas ..... *Harold Cherniss*
Introduced by George Boas
Plato's Idea of God ..... *Raphael Demos*

4:30 P.M. Tea The President's House, Oak Place, Baltimore

5:30 P.M. Meeting of Executive Committee

7:30 P.M. Annual Association Dinner

PRESIDENTIAL ADDRESS:

The Present Status of the Mind-Body Problem .. *James B. Pratt*

TUESDAY, DECEMBER 31

9:30 A.M. Room 409 Southern Hotel

The Concept of Cause in History ..... *James Burnham*
Logic and the Philosophy of History ..... *Arthur O. Lovejoy*
Testability and Meaning ..... *R. Carnap*
Introduced by C. I. Lewis

12:15 P.M. Room 409 Southern Hotel

ANNUAL BUSINESS MEETING